

Baringo - Silali Chronicles

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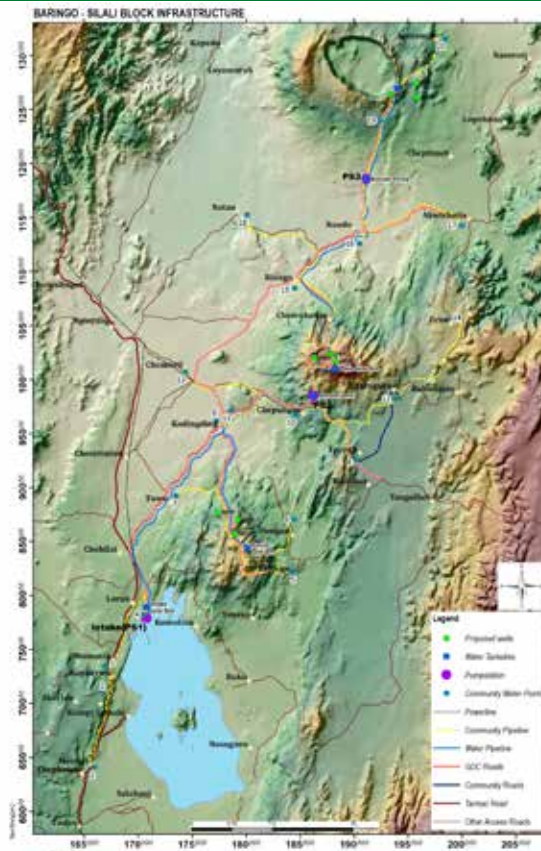
Ultimate Xpress

Baringo – Silali Chronicle is a photographic illustrated book using captioned images and textual narrative to tell GDC's story in the Baringo- Silali Geothermal Block. It gives the reader a quick understanding of the project and the ongoing activities. It is published by the Geothermal Development Company (GDC). Reproduction of content in this publication requires permission from GDC.

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Map of Baringo-Silali Geothermal Project.



Expansive... The Silali caldera which harbours massive geothermal potential.

About us

The Geothermal Development Company (GDC) is fully government-owned company in Kenya's energy sector. GDC was formed in 2008 as a Special Purpose Vehicle (SPV) to accelerate the development of geothermal resources in Kenya.

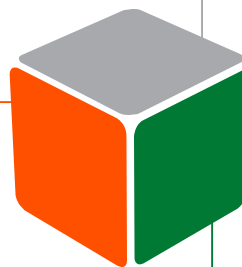
GDC is tasked with developing steam fields and selling geothermal steam for electricity generation to KenGen and to private investors.

Geothermal steam is an environmentally friendly and abundant raw material used for generating electricity.

The government and several development partners have been financing risks associated with geothermal exploration and drilling.

MISSION | VISION | VALUES

OUR MISSION
Develop green energy for Kenya from geothermal resources.



OUR VALUES

- Integrity - GDC subscribes to high ethical standards, openness and honesty
- Professionalism - GDC embraces excellence, quality service, and continual improvement.

OUR VISION

To be a world leader in the development of geothermal resources.

Baringo-Silali Chronicles

INTRODUCTION

Baringo-Silali Block comprises of Baringo, Arus, Korosi, Chepchuk, Paka and Silali prospects. The first phase will involve development of 300MW consisting of 100MW from each of the prospects Paka, Korosi, and Silali with funding from the Government of Kenya (GoK) and Kreditanstalt für Wiederaufbau (KfW). Project approvals, detailed surface exploration studies, County Government and community engagement, approval, Baseline Environmental and Social Impact Assessment and acquisition of ESIA license, and Key Infrastructure Works including the water supply system and the road access have been completed. The construction of three (3) drill pads in Korosi and three (3) drill Pads in Paka was also completed. Mobilization of the first GDC rig was completed with the drilling of the first well in Paka commencing in November 2018. Drilling of the second well is currently underway.

PROJECT FINANCING

In 2014, KfW signed a concessional loan with GDC through Government of Kenya (GoK) for the drilling service of 15-20 geothermal wells, installation of Water Supply System, and undertaking several consultancies (Implementation Consultant, Feasibility Study and Transaction Advisory services) in Baringo-Silali Geothermal Prospects. African Union Commission through the Geothermal Risk Mitigation Facility (GRMF) is also providing financial support for Paka, Korosi and Silali projects

PROJECT PARTNERS



Envisioned Benefits

Electricity
Paka Prospect
- 100MW
Korosi Prospect
- 100MW
Silali Prospect
- 100MW

Our Social Investment

1. Employment
2. Education
3. Water
4. Health

Economic Empowerment

1. Electricity for homes and industries
2. Industrial Parks
3. Road Network
4. Direct use:
 - Tourism and Spa heating
 - Swimming pools
 - Agriculture
 - Industrial application



The project covers three geothermal prospects - Silali, Paka and Korosi - from which the company is looking to produce a total of 300 megawatts (MW) by 2030. Baringo - Silali prospect will have an impact on the region and Kenya.



Surface exploration...GDC Geothermal Resource Assessment (GRA) team conducting initial surface exploration studies.



Fumaroles...During the initial surface exploration studies in the area, GDC scientists studied fumaroles which manifested a possible presence of geothermal resource.



Rock formation...GDC geologists studying geological structures within the Baringo-Silali area from rock formation. Such formations affect the occurrence and distribution of geothermal systems.



Geochemistry... GDC's geochemistry team at work in Baringo-Silali.

Our geophysicists...GDC geophysicists at work in Baringo-Silali area.





Laying the foundation... Mr. John Omenge (right), then Chief Geologist, Ministry of Energy, Chairman of the GDC Board of Directors Mr. Gershom Otachi Bw'Omanwa (3rd right), Managing Director & CEO Eng. Johnson P. Ole Nchoe (4th right) and other key officials lay the foundation stone at the Chesiran Water Intake Point in early 2018. GDC top leadership and key state officials have been committed in ensuring the Baringo-Silali project is implemented.



GDC has constructed several well pads.



Infrastructure development... The Government of Kenya (GoK) is funding the construction of access roads and community engagement initiatives while KfW has given GDC a concessional loan of Euros 80 Million (Ksh8 Billion) for drilling of 15-20 geothermal wells, undertaking of consultancies and installation of water supply for drilling.



Water tank construction... A section of contracted staff and members of the local community assist in construction of a water tank at Paka Prospect. GDC believes that community participation is a key approach towards enabling villagers to help themselves and sustain efforts in the project development work. Community stakeholders are important to this project achievement.



Road network... GDC has constructed over 100km of roads in Korosi, Paka and Silali. This has enabled easy transport in the area and opened the region which is now easily accessible to all.



Generators...*In late 2018, GDC began installing 3000KvA generators which have assisted in pumping drilling water and providing critical services to staff.*



Part of the camp site where GDC drilling crew reside.



GDC gives new breath of life to the Baringo-Silali area.

It has been a bee hive of activity with trailers carrying pipes and other infrastructural equipment navigating the rough terrains of Kapkerwa site, through Chesiran water intake point laying them along the roads heading to Korosi, Kading'ding, Paka, Naudo and Silali prospects. GDC drillers are now comfortably residing at the camp.





Start of development of the water pumping station at Chesiran Water Intake Point.



Contracted workers and members of the local community take part in laying of water pipes.

Massive tanks... *These massive water tanks will ensure there is constant flow of water for the project. Each tank holds upto 4.4 Million litres of water. Drilling requires large amounts of water.*



One of the generators.

Our Leadership and Partners



Endorsement...Energy Chief Administrative Secretary (CAS) Hon. Simon Kachapin (center) cuts a ribbon to officially launch one of the water filtration points. Looking on, from left, is the KfW Senior Project Manager Michael Andres (left) and GDC Managing Director & CEO Eng. Johnson P. Ole Nchoe (right). The Baringo-Silali Geothermal Project has support and endorsement from key development partners and other critical stakeholders. The teams are ready to support GDC, work together with the Ministry of Energy and the National Treasury to ensure the project comes to fruition.



Managing Director & CEO Eng. Johnson P. Ole Nchoe (center) confers with GDC General Manager for Resource Development Mr. Cornel Ofwona (right) and General Manager, Legal Affairs & Company Secretary Ms. Beatrice Kosgey during one of the visits to Baringo -Silali

GDC Regional Manager in charge of North Rift Mr. John Lagat (left) with a team from KfW; from right, KfW Senior Project Coordinator-Energy Jeff Murage (right) and Senior Technical Advisor Wesly Vargas.



Parliamentary visit... Members of the Parliamentary Select Committee on Energy, led by Hon. David Gekaria have also toured the project.



Donor confidence... GDC Managing Director & CEO Eng. Johnson P. Ole Nchoe (right) explains a point on the ongoing development of the Baringo-Silali Geothermal Project to Energy Chief Administrative Secretary Hon. Simon Kachapin (in green helmet) and officials from KfW – Senior Technical Advisor Wesly Vargas (left), Senior Project Manager Michael Andres (second left) and Senior Project Coordinator-Energy Jeff Murage (second right). KfW are the main financiers of the project.





Water relief... *This project will save families from the pains of long distance trek in search of water. That precious time, mostly lost by women will be invested in other critical social and economic ventures. More girls will be able to go to school instead of searching for water.*



Water filtration points... *GDC has installed water filtration points at the nearby schools and villages. Children, residents and livestock can now access clean drinking water and for domestic use. Most of them are now in school and rampant cases of absenteeism is a thing of the past. Before water filtration centers were installed, pupils used to travel long distance to fetch water.*



Social Investment... *GDC's Social Investment Programmes in Baringo-Silali area will be anchored under pillars of health, water availability, and education. These are inter-dependent pillars seen as catalysts for development.*



Water provision for women... *For Baringo-Silali region's women and children, water crisis is personal. They normally suffer while searching for this precious commodity for critical domestic use like cooking, drinking, sanitation and hygiene. These women walk long distances to collect water, or at times pay exorbitant amounts of money to secure this commodity. However, for these women of Tiaty East area, water has been made available, thanks to GDC. On this day, they were joined by GDC's General Manager in-charge of Drilling and Infrastructure Eng. George Kinyanjui (in the background).*



A helping hand... From left, Managing Director & CEO Eng. Johnson P. Ole Nchoe, leads GDC team in distributing relief food to Loruk residents in Baringo County, North Rift. Right, a GDC lorry carrying relief food navigates through a flooded river Perkera during a food distribution exercise in Baringo. Below, left, GDC Manager, Community Relations Ms. Grace Mwai assists area residents in food distribution exercise.



Water trough progress... GDC Regional Manager in charge of North Rift Mr. John Lagat (left) and Chief Engineer, Infrastructure Mr. Joseph Mberia inspect ongoing construction of a livestock water trough. GDC has constructed water troughs within the project for the livestock.



Water for the livestock... GDC is committed to ensure provision of water for the livestock in the area as most residents depend on livestock as main source of economic activity and livelihood. GDC has constructed water troughs to assist the animals in quenching thirst.





Water scarcity is soon becoming a thing of the past.



Health Relief...Area residents line up to receive treatment at one of GDC's mobile ambulances. One of GDC's Social Investment is to ensure residents access health facilities.

Meeting the community...Energy Chief Administrative Secretary (CAS) Hon. Simon Kachapin (right) engages the community on the benefit of the project. He was accompanied by the GDC Managing Director & CEO Eng. Johnson P. Ole Nchoe (left).





Area leadership... *Tiati Member of Parliament Hon. William Kamket (left) talks during a meeting coordinated by GDC and attended by representatives from three Trusts within the larger Baringo-Silali area; namely Loyamorok, Korosi and Silali. Looking on, (second left) is the Managing Director & CEO Eng. Johnson P. Ole Nchoe and GDC General Manager, Legal Affairs and Company Secretary Ms. Beatrice Kosgei (extreme right).*

Community appreciation...

GDC Managing Director & CEO Eng. Johnson P. Ole Nchoe (center) hands over a goat to members of the drilling crew. The animal was given as a donation from community members. GDC Management recognizes and appreciates employees for their contributions to the company's goals.



Well Spudding & Exploration Drilling



A drilling rig at Paka Prospect.



Spudding...*CEO Eng. Johnson P. Ole Nchoe takes to the driller's console to commission the drilling of the second well at the Paka prospect.*



Get set and go!...*A section of GDC drilling crew assisting the driller to set the drilling bit on position before start of drilling process.*

Ready to explore...

A drill bit being lowered to spud in at Paka Well-02 (PW-02).



Spudding of the well...

GDC geothermal wells from this region will be used for power generation and steam for industrial application which will eventually attract most industrialists and help to reduce the cost of doing business in Kenya.





Industrial revolution... *The Baringo-Silali Geothermal Project will be a big game-changer for Kenya. Using geothermal steam is a major cost-cutting strategy. For industrial processing, geothermal steam cuts the use of Heavy Industrial Oil normally used to heat industrial boilers. It is not only expensive but also a heavy pollutant.*





Green energy for the nation... GDC Geothermal Resource Management team set up before well testing at Paka Prospect. GDC will drive the country's green energy agenda to its fruition thereby giving Kenya reliable and sustainable energy with advanced research and innovative technologies. GDC's processes and project delivery efficiency will be improved through partnerships both at local and international levels. As we continue to innovate and increase our efficiency and refine our models, GDC will definitely cut the cost further.



The team... Our crew consulting during one of the working sessions.

Well Measurements and Reservoir Management

GDC reservoir team at a well in Paka Prospect, Baringo - Silali...As a base load, geothermal is the most reliable source of electricity. This means that it will easily power industries especially manufacturing. It will also boost development in the region and power agriculture.



Well Logging...*A geothermal well logging truck at PW - 01 well pad in Paka Prospect. The practice involves retrieval of well data such as temperatures and pressure at regular intervals.*





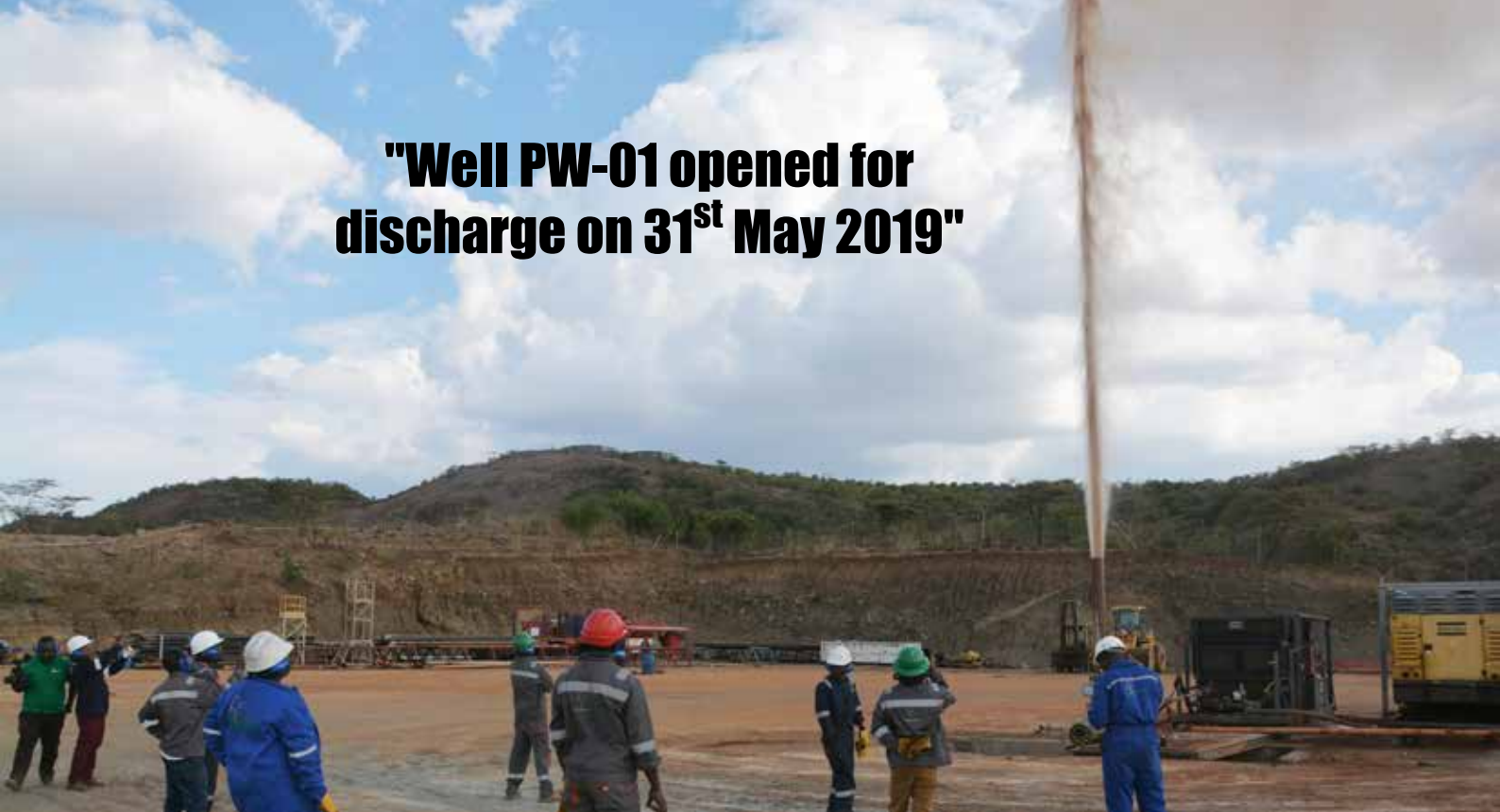
Assembling the well for well measurement.

Well Discharge

Exploratory well... GDC's first exploratory well in Baringo-Silali will yield critical and useful information regarding the area's formation. The Geothermal Resource Management (GRM) department monitors the well for critical data and information at regular intervals before ascertaining its capacity.



**"Well PW-01 opened for
discharge on 31st May 2019"**







We want to appreciate the relationship with KfW, the local community and the County Government of Baringo. I'm impressed by the development as we look forward to bringing positive change through this project. We are now moving towards the realization of our quest and ultimately enjoying the fruits of the great efforts we have put towards the success of this project.

Gershom Otachi Bw'Omanwa
Chairman of the GDC Board of Directors



Baringo – Silali Geothermal Project will be a key pillar in empowering communities and creating massive employment opportunities in this region. Baringo County Government fully supports GDC in all its endeavors. We are already seeing massive development and improvement.

H. E. Hon. Stanley Kiptis
Baringo County Governor



We are happy with the progress and GDC has certainly hit the set timelines. We are committed to the Kenyan Government, and ready to support GDC, work together with the Ministry of Energy and the National Treasury to ensure this project runs well.

Mr. Michael Andres - KfW's Principal Project Manager,
Energy & Financial Sector,
Eastern Africa



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